

Notice of Allowability

Application No.

09/606,857

Examiner

Heather R. Jones

Applicant(s)

LI ET AL.

Art Unit

2621

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the Advisory Action filed on 1/11/2006.
2. ☒ The allowed claim(s) is/are 39-62 (which have been renumbered as 1-24 respectively).
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some* c) ☐ None of the:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|---|--|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____. |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date _____ | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____. |

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Shirley Anderson on May 16, 2006.

The application has been amended as follows:

Claim 39 (Currently Amended): A method of rendering a view of a surrounding scene, the method comprising:

generating a plurality of longitudinal image arrays from a plurality of capture images;

determining, for the view to be rendered, a viewing position representing a location of an observer that is observing the surrounding scene; and

for each pixel in an image to be rendered as a representation of the view of the surrounding scene,

determining a viewing ray passing through the pixel in a direction of viewing of the observer, and

selecting which of a plurality of longitudinally adjacent capture images is to be used to determine a display value for the pixel, wherein the selecting comprises calculating an angle between the viewing ray and a camera direction at an intersection point between the viewing ray and the plurality of longitudinal image arrays.

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Claim 45 (Currently Amended) A method as recited in claim 43, wherein determining which one or more of the plurality of image columns to use comprises:

~~calculating an angle between the viewing ray and a camera direction at the intersection point; and~~

identifying the one or more of the plurality of image columns based on the calculated angle.

Claim 59 (Currently Amended) One or more computer-readable media having stored thereon a computer program that, when executed by one or more processors of a computer, causes the one or more processors to perform acts including:

determining, for a view of a surrounding scene to be rendered, a viewing position representing a location of a point of view inside the scene, wherein the surrounding scene is defined by a capture cylinder including a plurality of longitudinal image arrays generated from a plurality of capture images; and

for each pixel in an image to be rendered as a representation of the view of the surrounding scene,

determining a viewing ray passing through the pixel in a direction of viewing of the observer corresponding to the view,

determining an intersection point between the viewing ray and the capture cylinder,

using the intersection point to determine which one or more of the plurality of longitudinal image arrays to use to determine the display value for the pixel, determining, based on the intersection point, which one or more of a plurality of image columns in each of the one or more of the plurality of longitudinal image arrays to use to determine the display value for the pixel,

calculating an angle between the viewing ray and a camera direction at an intersection point;

determining, based on an elevation angle of the viewing ray, which one or more longitudinally adjacent capture images corresponding to the one or more longitudinal image arrays to use to determine the display value for the pixel,

determining, based on the elevation angle of the viewing ray, which one or more pixels from the one or more longitudinally adjacent capture images from the one or more capture images to use to determine the display value for the pixel, and

determining the display value for the pixel based on the display values of each of the one or more pixels.

Allowable Subject Matter

2. The following is an examiner's statement of reasons for allowance: Prior art fails to teach or fairly suggest a method of rendering a view of a surrounding scene, the method comprising selecting which of a plurality of longitudinally adjacent capture

images is to be used to determine a display value for the pixel, wherein the selecting comprises calculating an angle between the viewing ray and a camera direction at an intersection point between the viewing ray and the plurality of longitudinal image arrays as can be seen in Figs. 18 and 19.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Heather R. Jones whose telephone number is 571-272-7368. The examiner can normally be reached on Mon. - Thurs.: 7:00 am - 4:30 pm, and every other Fri.: 7:00 am - 3:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thai Tran can be reached on 571-272-7382. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only.

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For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Heather R Jones
Examiner
Art Unit 2621

HRJ
May 17, 2006



TUAN HO
PRIMARY EXAMINER